

Acute Nicotine Abstinence Effects in Adolescent Smokers

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Recent CDC reports indicate that 34.5 percent of adolescents in high school report current cigarette use, and of these approximately 60 percent report having made a quit attempt in the past 12 months (MMWR 2001). To date, we know very little about what maintains smoking behavior and makes quitting smoking so hard for adolescent smokers. Previous research in adult smokers has shown that abstinence effects like nicotine withdrawal as well as mood and cognitive changes are important in the maintenance of cigarette smoking (USDHHS, 1988). Retrospective evaluations indicate that like adults, adolescent smokers also report experiencing nicotine withdrawal symptoms when not smoking. However, the factors involved in maintenance of and relapse to smoking in adolescent smokers have not been systematically evaluated.

In order to better understand these factors, we recently completed a systematic prospective examination of bio-behavioral abstinence effects in male and female adolescent smokers including changes in nicotine withdrawal symptoms, cognition, responses to physical and psychological stressors, and pain tolerance during the first 48 hours of tobacco abstinence. One hundred and six adolescent male and female smokers and nonsmokers participated in two laboratory sessions, one outpatient session conducted when smokers were not abstinent from cigarettes and one 48-hour inpatient session during which smokers were required to be abstinent from cigarettes.

In this presentation, preliminary results will be presented with regard to changes in pain tolerance and cognition during acute tobacco abstinence. More specifically, female smokers experienced time-dependent decreases in cognitive responses during abstinence when compared with male and female nonsmokers. Conversely, male smokers experienced significant decrements in pain tolerance during abstinence, an effect that was not seen in female smokers. Results from evaluations of nicotine withdrawal symptoms and mood changes also will be presented. These results suggest that adolescent smokers experience abstinence effects when they quit smoking. However, there are significant gender differences in these tobacco abstinence effects that could mediate differences in ability to quit and relapse to tobacco use.